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Information Technology Services (ITS): a role of Information Practitioners

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Abstract:

The paper attempts diverse kind of technologies available today in the field of Library and Information Science. What is the role and skills of Information Practitioner (IP) in the networked library environment? How practically, the technology supports and serves user community to have success in meeting their objectives. This paper emphasis mainly on information technology services such as capturing, storage, networks-consortia, online, web designing, e-learning, open access archival, intelligent-automation and their effective utilisation.

1. Introduction:

As counter part, a resourceful library stands to connect, capture, preserve and access universe of knowledge of nation's interest. With using emerging technologies, the library saturates information through information technology services such as capturing, storage, networks-consortia, online, web designing, e-learning, open access archival, intelligent-automation. These services support a large community of users in accessing large quantity of quality resources with minimum cost effective and maximum beneficial

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way. Yeates had surveyed; one of the recipients responded that *"Library should always be the place to gain, discover, and improve ones knowledge. Being enlightened through gathering information is being empowered in society"* [1].

A role of Information Practitioners (IP) in the libraries has changed worldwide, no longer the keeper of books but the provider of information and learning opportunities. This point is made in a Ugandan study in 2000: *A library is not a shrine for the worship of books, but ought to be a 'maternity room' of ideas, a workshop for creativity* [2]. As manager IP must create an atmosphere where high-level customer service is not only expected, but also ensured and thoroughly studied. In customer-oriented paradigm IP reflect according to psychological behaviour of each individual and their information needs. Humes says that customer service is not a program or a process: It is a belief system that is delivered *by* an individual *to* an individual [3].

Nemko (2007) commented about the role of librarian that "forget about the image of librarian as mousy bookworm. Today's librarian is a high-tech information sleuth, a master of mining cool databases (well beyond Google) to unearth the desired nuggets [4].

2. Who is Information Practitioner (IP)

Definition:

Information Practitioner is a multifaceted personality, who practices by profession of *Library and Information Science* in discovering, classifying, managing information and providing proactive services to a defined community of users on an ongoing basis.

3. Role of Information Practitioners in Multiple Sectors:

In any sector, Information Practitioners (IP) have crucial role to play in connecting between the user and information sources.

IP is a multifaceted Personality who works in the …

- **Library Sector** (*Public, Academic and Special*) – as Librarian, Information Officers, Documentation Officer and Information Scientist, Information Professional, Information Practitioner etc.
- **Publishing Sector** – as Editor, Writer, Proof Reader, Complier, Executive, Representative etc.
- **IT Sector** – as System Analyst, Programmer, Database Administrator, Webmaster, Taxonomists etc.
- **Service Providing Sector** – as Information Broker, Content Manager, Knowledge Manger etc
- **Marketing Sector** – as Business Executives, Sales Managers, Sales Representatives etc.

According to the *Lehman and Brown* (1995) more than half of the U.S. work force is in information-based jobs, and the telecommunications and information sector is growing faster than any other sector of the U.S. economy. New job opportunities can be created in the processing, organizing, packaging and dissemination of the information and entertainment products flowing through the National Information infrastructure (NII) [5].

4. Information Practitioner – Skills

- Ability to communicate and collaborate with people
- Ability to identify information tools and sources
- Ability to identify information needs of local and remote users.
- Ability to organize and promote information resources & services
- Ability to take decision, policy planning

- Ability to vigilance, examine and assess information resources.
- Ability to initiate and promote sharing of information
- Ability to train faculty, students, scholars and staff in use of latest technologies.
- Familiarity with emerging computer based application technologies

5. Applications of Information Technology Services (ITS):

"We shape technology, technology shapes us" – *M McLuhan*

Advancement of application-oriented and multiple-supported information technologies with new available tools accomplishes the expectations of academic world in using local or remote information resources. Information services are basic tools to invent and share new knowledge. The technology is adding little-less spice (*masala*) to become more taste in terms of accuracy-in-content, speed-in-access, efficiency-in-operations, flexibility-in-format, frequent-in-updations and quality-in-service etc. "Now technology has penetrated every facet of library service, and every staff member has to know something about technology" [6]. Potential installations of each technological information service (Fig.1) is properly distributed, communicated and utilized by authorized users for their scholarly use.

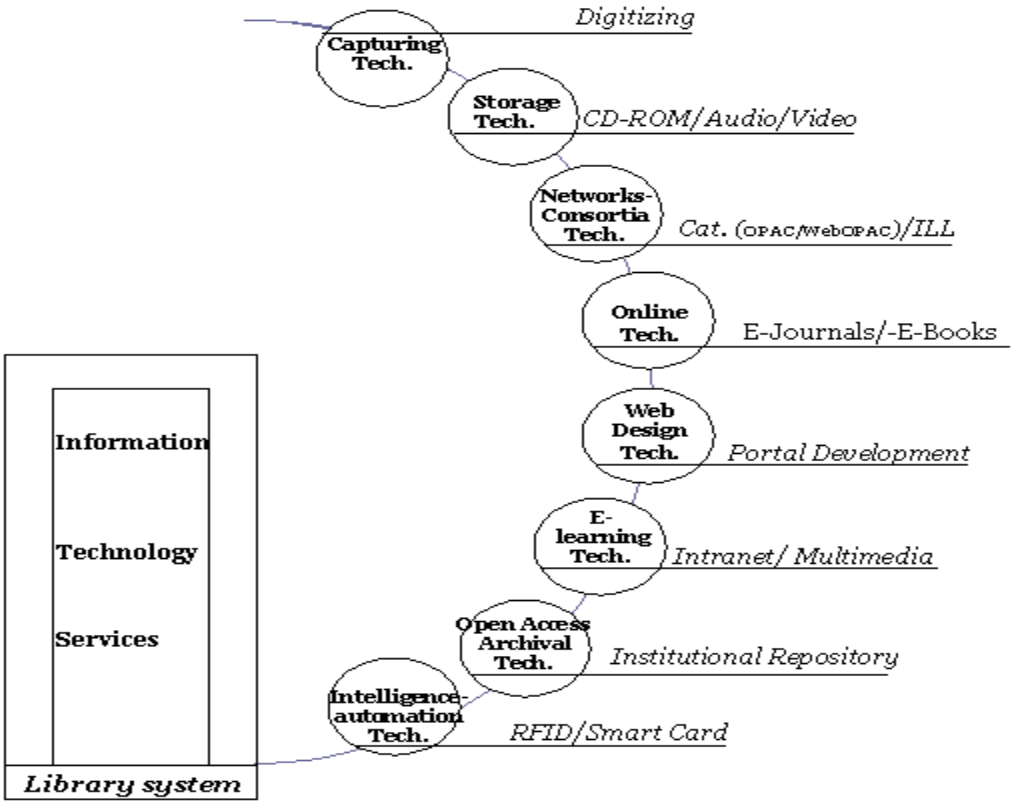

Fig. 1. **Design of Information Technology Services**

Capturing Technologies:

Information is not captured, is faded or lost. So, need some kind of technology both software and hardware (*voice recognition systems, barcode readers, image scanners etc.*) to capture, recognize and convert and preserve information in digital form. In digital publishing world, Information is being produced in greater quantities and with greater frequency. Information is available today; gone tomorrow. In UK alone, a new web page is created every two seconds (Der Spiegal, 8 Feb 1999, p.89). Gail Fineberg in an article "*Capturing the Web*" described that digital content born on the Internet more than doubles every year, but much is lost as soon as it appears. The average life span of a Web page is only 44 days; 44 percent of all the Web sites available in 1998 had disappeared within a year [7].

Digitization service is widely used in libraries render an entire collection portable (*less storage space*) and longevity. In the Digitization (*electronic representation of physical paper form*) process in the library the IP has involved in the following:-

- Selection of documents are to be digitized
- Handling and training of computing hardware and software and other equipments
- Create an appropriate user-friendly interface system for easy search and retrieval information
- Copyright and license agreements of documents.

Storage Technologies:

Longevity of digital content is the matter of libraries to use storage technologies such as hard disks, RAM disks, optical disks (*DVD/CD-ROMs*), floppy disks, pen drives, magnetic taps etc. to preserve. Continuous research makes storage devices portable. High-end storage devices have designed in view of meeting the needs of multiple users.

CD-ROM and **Audio/Visual** services, are as medium of storage and retrieval. Multiple databases are produced in multiple formats in storage medium. Wood (1993) quoted in his book "*CD-ROM Implementation and Networking in Health Sciences*" that, "*The Bulletin of the Medical Library Association*" mentioned CD-ROM in 1986 in an article about new means of distributing electronic information. He also mentioned that, the early introduction of CD-ROM databases is MEDLINE, Elsevier's EMBASE on CD-ROM etc [8]. CD-ROM databases can be accessed through either by standalone or networked based. Specially, audio and video tapes contain voluminous content (*lecture notes, debates, proceedings, presentations etc.*), that can be perceived, remembered, or

acquired as knowledge. It creates effective self-interactive environment to do learning, teaching and research. IP has involved in the following:-

- Acquisition of electronic content (*check points ... form, language, edition and updations*).
- Preservation and management of e-content.
- Selection and handling High-end capacity CD-ROM servers for storage of networking CD-ROM databases.
- Effective search and retrieval information.

Networks-Consortia Technologies:

Adequate communication and network infrastructure facilities (*hardware, software and network devices)* allow users to access workstations, online systems, and databases etc. Networking is common in the libraries for sharing resources either by locally or by remotely. There are cooperative resources sharing models such as Library Networks, Consortium offer mutual exchanging resources and services with greater extent. The primary aims these two are to minimize the cost of acquisition and maximize the utilization of the resources.

Online Cataloguing and **Inter-library Loan** services bench mark and successful services for resources sharing in networked environment. In the recent past, majority of the libraries have automated their library resources for local and remote access and use. Networking technology enables to close content either by searching and accessing catalogue information (*Online Public Access Catalogue (OPAC) and Web-based Online Public Access Catalogue (WebOPAC*)) or Reciprocal borrowing of member libraries are by and large request and respond for material (*including books, journals and*

multimedia CD-ROMs etc.). Certain standards and protocols facilitate for searching, accessing and exchanging of information resources through networks. **Feather and Sturges** (1997) described that increasingly catalogue entries in machine-readable form (MARC) are being created co-operatively and distributed from a centralised source [9]. A definite protocol to facilitate the exchange of interlibrary loan messages between libraries. ILL protocol a set of protocols ISO 10160 and ISO 10161, is another key protocol in the library network field. It handles ILL message exchange and status control of an ILL transaction [10]. IP involved in the following:-

- Participate in cooperative cataloguing and acquisition programs
- Preparing union catalogues and share with other libraries
- Promoting library cooperation
- Design effective uniform user-friendly interface model for sharing resources
- Provide Inter-library loan and online document delivery services.

Online Technologies:

Online databases (*bibliographical and full-text*), are an organized collection of resources (*e-journals, e-books and other e-resources*) stored in the remote locations and accessed the same from your desktop (24/7) over the network. Mostly, these are licensed databases, acquired from various publishers or institutions or service providers who host (*store and manage*) their resources through online for sale. These databases can be accessed either by user-ID and password-based or by Internet Protocol (IP)-based. The advantages of the online databases are potentially faster updating. The accessibility is based on your contract. It may be limited, perpetual, trail and pay per view. The data in a database usually in structural form, so that search access through online can be possible in many ways.

E-Journals/E-Books (*published in electronic format*) are largely used in libraries for finding and access scholarly information resources over network. IP has involved in the following:-

- Selection and acquisition of online content (*e-journals, e-books and e-reference materials*)
- Ensure the delivery of content accessibility via password-based or by Internet Protocol (IP)-based perpetual, trail and pay per view access.
- Frequent database search and retrieval and offer effective information services.
- Making standardised policies and undertaking copyright and license agreements
- Usage statistics and evolution of online resources
- Create user awareness and training programs

Web Designing Technologies:

Web sites design is an art of writing codes and creating web pages with using languages e.g. *HTML, XML etc.* In the competitive business world, the expectations of the clients and their business needs are becoming high. In view of all these, an organisation must further develop their Web-based technologies to stand themselves robustly in the international competitive marketing.

Website and ***Portal Development*** an excellent design & development of library website/portal or web page allows user to access information resources from single location. Content is main source of keeping website live. A page of web site should be informative, precise and clear that fascinates people visit to access. There are two characteristics in portal development, first one is static and another one is dynamic in

nature. A static portal serves as a central gateway to access resources. A dynamic portal lets users customize the interface to meet their needs [11]. The librarian or IP as intermediaries, in dealing with producers, information service providers, contend providers and users for content updations, uploading and managing web. They involved in the following:-

- Creation and design of effective, concise and informative website and portal.
- Content creation and management (linking, organizing, uploading)
- Ensure that Quick and accurate linking of the resources from single location.
- Monitoring and statistics

E-learning Technologies:

E-learning is a thoughtful process of flexible learning through electronic means such as internet, intranet, CD-ROM, interactive satellite TV and audio or video tapes**.** It disappears the boundaries (*not constrained by geography or time*) in instructing e-content such as learning materials, lecture notes, speeches, online training, online assessments etc. to teachers, students, and scholars etc. The distance education is more effective by the e-learning technologies.

Online learning is two types of nature one is synchronous (*real-time*) learning another one is *asynchronous* (*off-time*) learning. Synchronous learning which interacts in real-time with users for example video conferences, whiteboard sessions, virtual classrooms, instant-messaging. Where as asynchronous learning is not constrained by geography or time. Here everyone is involved in his/her own convenient for examples online course materials (*MIT Open CourseWare* <http://ocw.mit.edu/index.html>).

Offline learning is a set of course materials available through optical and magnetic media (*CD-ROM/DVD and audio/video tapes etc*.) for the benefit of the local users. IP involved in handling e-learning issues as follows:-

- Critical study (p*lanning, selection and assessment*) of computing hardware and software and other equipments of e-learning
- Content acquisition and management
- Content design, & development
- Training

Open Access Archival Technologies:

The term 'Open Access' (OA) is not new to the library zone, it has been using for years. In the conventional libraries, the term was used for shelf-arrangement of library materials for greater visibility, accessibility and usability. Where as, the concept of using term OA now has considerably high in term of sharing scholarly information freely. The movement of 'open access' is mushrooming for common benefit. There are worried factors such as exponential escalating journals price, copyright issues (Peter Suber, 2007) [12], slowly become vanished by the OA movement. Libraries and Librarians, IP job are mainly focusing on creating an Institutional Repositories (IR), in the open access networked environment.

Institutional Repository is a repository of an institutionalised-intellectual research-output, and is a major development of library to preserve and disseminate. Institutional Repositories are arsenals of recorded knowledge: not only textual but also audiovisuals, data sets and software [13]. In OA environment Librarians or IP have a challenging role in creating, distribution and dissemination scholarly information as follows:-

- Creating and selecting an information infrastructure (hardware and software specific (*Eprints, Dspace, Fedora etc.*),
- Registering repository (registry of open access repositories (ROAR))
- Promoting content (self-archiving), and uploading content
- Adoption of certain polices (mandating), and selection of content (*journals articles, conference papers, doctoral theses and dissertations, projects, dataset, images, photographs and video recordings etc.)*
- Creation of metadata installation and effective indexing system of search and retrieval though union catalogue of digital resources (OAIster).
- Promotion of OA movement and regional development
- Organise workshops and training programmes.

Intelligence-automation Technologies:

Automation is an umbrella term used in multiple sectors including libraries to automate internal operations. With using exponential growth of advanced technologies such as Radio Frequency Identification (RFID), Smart Card system, the libraries have become paper-less offices today. These technologies behave intelligently in the process of recognising, capturing, transferring and delivering information. They are compatible with integrated library system. These technologies are fastest, easiest, most efficient way to track, locate and manage library materials. It increases accuracy in speedy services in the library system.

Radio Frequency Identification (RFID) and Smart Card System – RFID technology is the modern library automation system that facilitates self check-in, self

check-out and automatic security system. It is method of remotely storing and retrieving data using devices called tags. This is a smart tag which consisting a chip (*microprocessors*) with an antenna. When activated by a reader, it can send and receive information. Through this system, the circulation and security activities of the library occur effectively. An item is not properly discharged the security bit (alarm) indicates users to go back the process. Similarly, a **smart card** with embedded chip (*microprocessors*) or magnetic strip technology enables user to transact library resources and security. Along with the applications of cutting-edge technologies in the libraries, the IP is to be trained and tuned according to the need. Some of the observations and experiences of IP as follows:-

- Critical study (p*lanning, selection and assessment*) of computing hardware and software and other equipments.
- Compatibility with integrated library software packages, a role of middle ware.
- Economic constraints (hardware and software and microprocessors etc).
- Tagging (*retro-conversion*) and effective services
- Training and software and hardware evaluation.

6. Conclusion:

Starting with the quotation reported by Crosby (2000-01) "*Librarians still find ways to make information useful, but now technology gives them more options*" [14]. It is absolutely true in real-world library environment. Each technology has unique quality to extend their potentials through the services offered by the libraries. *Capturing* – Information is not captured is faded or lost, *Storage* - longevity of digital content, Networks-Consortia – adequate communication and network infrastructure facilitates to share resources, Online – databases stored in the remote locations and accessed the

same from your desktop (24/7), Web Designing – web site should be informative, precise and clear that fascinates people visit to access, E-learning – thoughtful process of flexible learning through electronic means, Open Access Archival – creating a repository of an institutionalised-intellectual research-output is major development of libraries to preserve and disseminate. Intelligent-automation – the libraries have become paper-less offices today. In an open world, IP much concerns about tools and techniques of the advanced technologies, which will influence further in libraries and their services. This article concludes with the quotation "more you access and more you benefited".

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